

WHAT IS CLAIMED IS:

1. A fuel injector comprising:
 - a direct-current power supply,
 - 5 a power voltage detection means, a coil-equipped fuel injection valve, and
 - a control unit for controlling said fuel injection valve; wherein
 - said fuel injection valve has a plurality of coils and said control unit
 - outputs a changeover signal for changing the magnitude -of-resultant
 - 10 inductance of the plurality of coils of said fuel injection valve in
 - accordance with a power voltage detection value sent from said power
 - voltage detection means.
2. The fuel injector of claim 1, wherein
 - 15 said control unit sets a reference value of a power voltage
 - beforehand and outputs a changeover signal by which, when a value that
 - has been detected by said power voltage detection means is less than
 - said reference value that has been set beforehand, said coils are reduced
 - in resultant inductance, and
 - 20 when the power voltage detection value is greater than said
 - reference value, said coils are increased in resultant inductance.
3. The fuel injector according to claim 1 or 2, wherein
 - said fuel injection valve has at least two coils and said control unit
 - 25 outputs a connection changeover signal for connecting said plurality of

coils in parallel to set the resultant inductances thereof to small values and changing said plurality of coils to series connection to obtain large resultant inductance values.

- 5 4. The fuel injector of claim 1, 2, or 3, wherein
 said control unit outputs a changeover signal of the plurality of coils
 of said fuel injection valve when a power voltage value that has been set
 beforehand is reached.
- 10 5. The fuel injector of claim 1 or 2, wherein
 said control unit is adapted so that a current is supplied to said
 plurality of coils of said fuel injection valve by constant -current limitation.
- 15 6. A control method for a fuel injector which comprises:
 a direct-current power supply,
 a power voltage detection means, a fuel injection valve with at least
 two coils, and
 a control unit for controlling said fuel injection valve; wherein
 said control method:
20 detecting that a voltage detected by said power voltage detection
 means has decreased to a value that has been set beforehand,
 creating a connection changeover signal of at least said two coils
 from said detection signal, changing the connection of the coils, and
 conducting control so that the time-varying characteristics of total
25 magnetomotive force are approximately maintained at the characteristics

existing before the power voltage decreased.